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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,538

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Bernard Teneze

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STEVENS DAVIS MILLER & MOSHER, LLP
1615 L STREET, NW
SUITE 850
WASHINGTON, DC 20036

EXAMINER

DOBSON, DANIEL G

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

01/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/516,538

Applicant(s)

TENEZE ET AL.

Examiner

Daniel G. Dobson

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. **Claims 8-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,880,467 B1 to Knapp (*Knapp*) and U.S. Patent 4,013,244 to Blom et al. (*Blom.*)

As to **Claim 8**, *Knapp* discloses a method for producing an optical link (Col. 1, ll. 36-45) with laser pulses (Col. 3, ll. 17-8) between an emitter (Col. 3, ll. 36-7) of the pulses and a receiver (Fig. 1, 18, receiver) of the pulses, the optical link being used by a locating device for locating a body (Fig. 1, 10, round) moving at constant speed away from the locating device, the method comprising:

delaying the start of emission of the laser pulses with respect to the departure of the moving body (Col. 3, ll. 13-7); and

varying the energy of the successive laser pulses in proportion to the time elapsed since the start of emission of the pulses (Col. 4, ll. 39-40.)

Blom discloses that "[t]he power that the transmitter needs to transmit is determined . . . by the square law dependence of irradiance on distance (Col. 1, ll. 24-7)." The square law states that intensity falls off as the square of the distance from the object. Therefore, in the case of an object moving away at a constant velocity, the intensity falls off as the square of time.

Knapp and *Blom* are from the same art with respect to optical guidance.

Therefore, they are analogous art.

At the time of the invention, it would have been obvious for a person of ordinary skill in the art to adjust the energy of the laser pulses (*Knapp*) such that the energy increases as a function of the square of time (*Blom*.) The suggestion/motivation would have been to overcome the limited dynamics in the amplifier of the receiver (Col. 1, l. 30.)

As to **Claim 9**, *Knapp* discloses a device for producing an optical link (Col. 1, ll. 36-45) with laser pulses (Col. 3, ll. 17-8) between an emitter (Col. 3, ll. 36-7) of the pulses and a receiver (Fig. 1, 18, receiver) of the pulses, the optical link being used by a locating device for locating a body (Fig. 1, 10, round) moving at constant speed away from the locating device, said device comprising:

a delay section (Col. 3, ll. 13-7) that delays the start of emission of the laser pulses with respect to the departure of the moving body; and

an energy control section (Col. 4, ll. 39-40.) that varies the energy of the successive pulses in proportion to the time elapsed since the start of emission of the pulses.

Blom discloses that "[t]he power that the transmitter needs to transmit is determined . . . by the square law dependence of irradiance on distance (Col. 1, ll. 24-7)." The square law states that intensity falls off as the square of the distance from the object. Therefore, in the case of an object moving away at a constant velocity, the intensity falls off as the square of time.

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The suggestion/motivation is the same as that used in the rejection for Claim 8.

As to **Claim 10**, *Knapp* further discloses that the said emitter comprises at least one laser diode (Fig. 4, 82, laser diode; Col. 4, l. 30.)

3. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,880,467 B1 to Knapp and U.S. Patent 4,013,244 to Blom et al., as applied to claim 9 above, and further in view of U.S. Patent Application Publication 2002/0181055 A1 to Christiansen et al. (*Christiansen*.)

As to **Claim 11**, *Christiansen* discloses an optical wireless link (§ 3) where the transmitting device is a VCSEL (§48, last 5 lines.)

Christiansen is from the same art with respect to optical links, and therefore is analogous art.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use a VCSEL as an emitter (as taught by *Christiansen*) in a system as disclosed by *Knapp*. The suggestion/motivation would have been to use a laser diode that has a narrow emission cone and less dependence on temperature (*Christiansen*, §48, last sentence.)

4. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,880,467 B1 to Knapp and U.S. Patent 4,013,244 to Blom et al., as applied to claim 9 above, and further in view of U.S. Patent 3,371,232 to Hannan et al. (*Hannan*) and U.S. Patent 4,216,520 to Horblin (*Horblin*.)

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As to **Claim 12**, *Hannan* discloses a capacitor (Fig. 1, 23) whose successive discharges supply the emitter (15) so as to produce the successive laser pulses (Col. 2, ll. 25-34.)

Horblin discloses that the voltage on a capacitor is directly related to the width of the square wave charging pulse (Col. 5, ll. 5-8.)

Hannan is from the same art with respect to operation of a pulsed laser, and is therefore analogous art. *Horblin* discloses basic properties of charging a capacitor and it therefore analogous art.

The energy contained in a capacitor is given by $E = C \cdot V^2$. Thus, the energy in a capacitor is related to the square of the width of a charging pulse. *Blom* teaches that it is desirable to increase the energy of the laser pulses with the square of time. At the time of the invention it would have been obvious for a person of ordinary skill in the art to use linearly increasing charging pulses on a discharge capacitor (*Hannan*) in a device as disclosed by *Knapp* and *Blom*. The suggestion/motivation would have been to use accepted engineering practices to increase the pulse energy of a missile beacon to overcome limitations caused by the irradiance square law.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel G. Dobson whose telephone number is (571) 272-9781. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/dgd/



KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER